

REMARKS

Claims 1-17 are pending and rejected.

The Examiner has objected to the typographical error “fourth output datum,” on page 2, line 17 of the specification. In response, Applicants are replacing the phrase “fourth output datum” with the phrase “third output datum,” consistent with subject matter as recited in claim 2.

Claims 1-2, 4, 8 and 12 were rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,343,553 to Miyazawa et al. (“Miyazawa”). Applicants respectfully traverse.

Regarding claim 1, the Examiner contends that Miyazawa teaches a comparison means (FIG. 31, 394). Claim 1 recites, in part,

A calculation circuit for calculating logical fuzzy union and intersection operations, comprising ... comparison means having a first input receiving said sign flag, **a second input receiving a first selection signal assuming a first level for the selection of said logical fuzzy union operation and a second level for the selection of said logical fuzzy intersection operation**; and an output supplying a second selection signal assuming a first level when said sign flag and said first selection signal comply with a pre-determined relation and a second level when said sign flag and said first selection signal do not comply with said pre-determined relation ... (emphasis added).

Applicants submit that Miyazawa’s comparison means (i.e., comparator 394) does not have “a second input receiving a first selection signal assuming a first level for the selection of said logical fuzzy union operation and a second level for the selection of said logical fuzzy intersection operation,” as claimed. Although Miyazawa states, col. 14, lines 65-67, “input variable  $x_i$  is compared in level with points of inflection  $x_L$  and  $x_R$  through this comparator circuit,” Miyazawa does not disclose, teach, or suggest a comparison means that receives a first selection signal for selection of either a logical fuzzy union operation or a logical fuzzy intersection operation. Furthermore, since Miyazawa’s comparison means does not receive a first selection signal, Miyazawa’s comparison means does **not** supply “a second selection signal

assuming a first level when said sign flag and said first selection signal comply with a pre-determined relation and a second level when said sign flag and said first selection signal do not comply with said pre-determined relation," as claimed.

Furthermore, the Examiner contends that Miyazawa's comparison means comprises the minimum-value calculation unit 920 (see col. 17, lines 9-13 and lines 25-50, and FIG. 2 and FIG. 49) and the maximum-value calculation circuit 133a-133g (FIG. 62) configured as part of the function synthesizing circuit 940 (see FIGS. 2 and 62, col. 23, lines 56-63, and col. 24, lines 4-46). However, Applicants fail to see how the minimum-value calculation unit 920 and the maximum-value calculation circuit 133a-133g are configured to receive a sign flag from the subtractor 390, receive a first selection signal assuming a first level for the selection of said logical fuzzy union operation and a second level for the selection of said logical fuzzy intersection operation, and supply a second selection signal assuming a first level when said sign flag and said first selection signal comply with a pre-determined relation and a second level when said sign flag and said first selection signal do not comply with said pre-determined relation, as claimed.

In addition, the Examiner states that Miyazawa discloses first data selection means 391 (FIG. 31), but admits that Miyazawa does not explicitly teach the first data selection means recited in claim 1. However, the Examiner states that it would have been obvious to one of ordinary skill in the art for simplifying construction of a fuzzy circuit. That is, Miyazawa states, col. 2, lines 10-14, "it is another object of the present invention to provide a calculation circuit ... for use in a digital fuzzy interface system, which are simple in construction" (emphasis added). Applicants submit that Miyazawa **has** disclosed a calculation circuit that is simple in construction (i.e., it is an **object** of Miyazawa's invention to provide a simply-constructed calculation circuit). If it would have been obvious to Miyazawa to simplify a calculation circuit by including a first data selection circuit as claimed in the present invention, then Miyazawa would have disclosed such a calculation circuit, since it is an object of Miyazawa to provide a calculation circuit that is simple in construction.

Furthermore, even if it would have been obvious to one skilled in the art to simplify Miyazawa's calculation circuit as alleged by the Examiner, although the Applicants

submit that it would not, it would not have been obvious to modify the selector 391 of Miyazawa to create the “first data selection means” recited in claim 1. Claim 1 recites that the first data selection means has first and second data inputs receiving the same first and second data received by the subtracter means and a selection input connected to the output of the comparison means. However, the selector 391 receives inputs  $x_L$ ,  $x_R$ , and  $x_O$ , and the subtractor 390 receives a **different** input  $x_i$ . Furthermore, the selector 391 does not have a selection input connected to an output of comparison means (i.e., comparator 394). Applicants submit that the Examiner has given no motivation for simplifying Miyazawa’s calculation circuit, and in particular, for modifying electrical connections between selector 391, subtractor 390, and comparator 394 to produce the “first data selection means” as recited in claim 1.

Based at least upon the foregoing reasons, Applicants respectfully submit that claim 1 is not anticipated by, or obvious over, Miyazawa, and request that claim 1 be allowed.

Claims 2 and 4 depend from claim 1, and thus, are not anticipated by Miyazawa for at least the reasons expressed above. In addition, claim 4 further recites that the comparison means comprise identity detection means that are not disclosed by Miyazawa. That is, claim 4 recites, in part,

... comparison means comprise identity detection means generating said second selection signal assuming said first level when said sign flag and said first selection signal are identical to each other and said second level when said sign flag and said first selection signal are different from each other.

The Examiner contends that slope coefficient switching comparator 403 (FIG. 36) as disclosed by Miyazawa teaches the limitations as recited in claim 4. Although the switching comparator 403 may compare a magnitude of input variable  $x_i$  with a magnitude of point of inflection  $x_L$ , Miyazawa does not disclose, nor has the Examiner shown, that the switching comparator 403 generates a second selection signal assuming a first level when the input variable  $x_i$  and the point of inflection  $x_L$  are identical to each other, and generates the second selection signal assuming a second level when the input variable  $x_i$  and the point of inflection  $x_L$  are different from each other, as claimed. Furthermore, Miyazawa does not disclose, nor has the Examiner shown, that the switching comparator 403 receives a sign flag from a subtractor and a first selection signal

the level of which determines a selection of a logical fuzzy operation, and outputs the second selection signal to a first data selection means, as recited in claim 1 from which claim 4 depends. In other words, Applicants submit that nothing in Figure 36 or the accompanying text suggest a comparison means that is connected as recited in claim 4 or that performs the function of the comparison means as recited in claim 4.

Based at least upon the foregoing reasons, Applicants respectfully submit that claims 2 and 4 are not anticipated by Miyazawa, and request that claims 2 and 4 be allowed.

With regard to claims 8 and 12, the Examiner states that Miyazawa does not explicitly teach first and second multiplexers, and selecting as a first output one of the first and second inputs, respectively. The Examiner further states, page 13, lines 5-8, “[a]lthough the structure of the fuzzy inference circuits differ, it would have been obvious to one of ordinary skill in the art at the time the invention was made for simplifying construction of a fuzzy circuit (Miyazawa et al, column 2, lines 10-14, ‘It is another … simple in construction’).” As discussed above in conjunction with claim 1, since an **object** of Miyazawa’s invention is to provide a calculation circuit that is simple in construction, Miyazawa’s calculation circuit is by definition simple in construction. That is, Miyazawa does not state that Miyazawa’s calculation circuit is not simple in construction and thus requires more simplification. Applicants fail to see how the calculation circuit of the present invention would have been obvious over Miyazawa’s calculation circuit simply because Miyazawa’s calculation circuit is simply-constructed. In addition, the Examiner gives no motivation for simplifying construction of Miyazawa’s calculation circuit, and in particular, for simplifying construction to include the elements as connected as recited in claims 8 and 12. Based at least upon the above foregoing remarks, Applicants respectfully submit that claims 8 and 12 are not obvious over Miyazawa, and request that claims 8 and 12 be allowed.

The Examiner states that claims 3, 5-7, 9-11, and 13-17 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Miyazawa for being dependent upon the rejected independent claims. Since claims 3 and 5-7 depend either directly or indirectly from claim 1, claims 9-11 depend either directly or indirectly from claim 8, and claims 13-17 depend either directly or indirectly from claim 12, Applicants

submit that claims 3, 5-7, claims 9-11, and claims 13-17 are allowable based at least upon the foregoing arguments made in conjunction with claims 1, 8, and 12, respectively.

In summary, the prior art rejections seem to be based on the alleged disclosure of particular structures recited in the claims, without regard for the connections between the structures or the recited functions of the structures. Applicants have provided examples where the prior art fails to teach or suggest those recited connections and functions. If the Examiner continues to reject the claims based on the prior art, Applicants respectfully request that the Examiner contact the Applicants' attorney for a telephone interview or point to specific parts of the figures and/or specification of the prior art that provide the recited connections and functions.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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